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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
10/669,145 09/23/2003		Milan R. Kokta	1035-BI3918-CIP	2965	
34456 7590 07/20/2005 TOLER & LARSON & ABEL L.L.P. 5000 PLAZA ON THE LAKE STE 265			EXAMINER		
			VANNUCCI, JAMES		
AUSTIN, TX			ART UNIT	PAPER NUMBER	
			2828		
			DATE MAILED: 07/20/2009	DATE MAILED: 07/20/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary    10/669,145							
Examiner   Art Unit   2828		Application No.	Applicant(s)				
Jim Vannucci   2828	Office Action Summan	10/669,145	KOKTA ET AL.				
The MALLING DATE of this communication appears on the cover sheet with the correspondence address - Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ② MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  Extensions of time may be available under the provisions of 3°CFR 1.736(a). In a event, however, may a reply be timely filled  Extensions of temply aspelled above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days, and the considered timely.  If the period for reply specified above is less than britisy (30) days will be considered timely.  If the period for reply specified above is less than britisy (30) days will be considered timely.  If the period for reply specified above is less than britisy (30) days will be considered timely.  If the period for reply specified above is less than britisy (30) days will be considered timely.  If the period for reply specified above is less than britisy (30) days will be considered timely.  If the period for reply specified above is less than britisy (30) days will be considered timely.  If the period for reply specified above is less than britisy (30) days will be above the limiting and the second second and second a	Office Action Summary	Examiner	Art Unit				
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THE MAILING DATE OF THIS COMMUNICATION.  Extensions of time may be suitable under the provisions of 3 CFR 1 13(e). In no event, however, may a reply be timely filed after SIX (5) MODITISE from the mailing date of this communication.  It is not been suitable to the provision of the provision of the communication of the communication of the communication of the communication of the provision of the communication of the provision of the mailing date of this communication.  It is not provised by the Office loads the mailing date of this communication.  Along reply received by the Office loads the mailing date of the communication.  Pallers to reply within the set or extended praide for reply will, by statute, cause the application to become ABANDOXED (55 U.S. 6, 133.). Along reply received by the Office loads the from the the motion date from the mailing date of this communication, even it timely filed, may reduce any summer palant term adjustment. See 37 CFR 1.74(b).  Status  1) Responsive to communication(s) filled on 21 April 2004.  2a) This action is FINAL.  2b) This action is non-final.  3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  Disposition of Ctaims  4) Claim(s) 1.22 Is/are pending in the application.  4a) Of the above claim(s) is/are withdrawn from consideration.  5) Claim(s) 1.22 Is/are rejected.  7) Claim(s) is/are objected to by the Examiner.  10) The drawing(s) filed on 23 September 2003 Is/are: a) accepted or b) by objected to by the Examiner.  Application Papers  9) The specification is objected to by the Examiner.  10) The drawing(s) filed on 23 September 2003 Is/are: a) accepted or b) by objected to by the Examiner.  Application Papers  9) The drawing(s) filed on 23 September 2003 Is/are: a) accepted or b) by objected to by the Examiner.  10) Application from the International Bureau (PCT Rule 17.2(a)).  11) Acknowledgment is made of a cla	The MAILING DATE of this communication app Period for Reply	ears on the cover sheet with the c	orrespondence address				
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#### **DETAILED ACTION**

Page 2

### Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 2. Claims 1-8, 11-14 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al.(4,370,739).

Claims 1-2 and 11-12, a single crystal spinel of (MgO)(Al2O3) formed from a melt is disclosed with a ratio of MgO to Al2O3 greater than one to one(col. 2, lines 12-21 and 30-32).

Claims 3 and 14, a single crystal spinel grown by a method that provides a melt in a crucible is disclosed(col. 2, lines 30-32).

Claim 4, the material has recited has a lower mechanical stress and strain compared to a stoichiometric spinel because a stoichiometric spinel tends to be inhomogeneous(col. 2, lines 25-28).

Claim 5, the disclosed material consists essentially of a single phase of the spinel with substantially no secondary crystalline phases.

Claims 6-8 and 13, a ratio greater than 2.0:1 is disclosed(col. 2, lines 22-24).

Claim 21, a melt that is heated to a temperature greater than 2150 degrees centigrade is disclosed(col. 4, lines 62-63).

Application/Control Number: 10/669,145 Page 3

Art Unit: 2828

### Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 4. Claims 9-10, 19-20 and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Thony et al.(RE38,489).

Wang does not disclose the following limitations.

Claims 9 and 19, Thony discloses a ceramic material(col. 5) made from (MgO)(AlO) and Co that forms a saturable absorber Q-switch(col. 1, line 35).

Claim 10, Wang discloses a molar ratio of MgO:Al2O3 of between 1:1.1 to 1:1.3. Thony discloses substituting Cobalt for Magnesium(abstract line 11, since subscript on cobalt is y and subscript on magnesium is x-y) in a saturable absorber. Given these disclosures, the saturable absorber Q-switch formula Mg(1-x) Co(x) Al(y) O(z) with x greater than 0 and less than about 1, y greater than 2 and less than about 8, and z between about 4 and 13 is within the disclose range. The disclosed single crystal has tetrahedral and octahedral positions and most of the magnesium and cobalt occupy the tetrahedral positions.

Claim 20, given the disclosure of Wang and Thony referenced above, a molar ratio of Mg:Co:Al of the spinel can be (1 -x):x:y where x is greater than 0 and less than about 1, and y is greater than 2 and less than about 8.

Application/Control Number: 10/669,145

Art Unit: 2828

Claim 22, the material disclosed in Wang in view of Thony has a unit cell dimension between 7.970A and about 8.083 A.

Claims 23-25, given the disclosures of Wang and Thony a value for z of about 4; or values of y of about 4 and z of about 7; or a value for y of about 6 and z of about 10 is possible and within the range of disclosed values.

Claim 26, Thony discloses an (MgO)(AlO) material doped with less than 1 percent Cobalt(col. 5, line 23). An amount between about 0.02 atomic weight percent and about 0.043 atomic weight percent would be obvious over this disclosure.

Claim 27, Thony discloses the material having an absorption band between about 1537 and 1544 nm(col. 3, line 55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the above referenced cobalt proportions disclosed in Thony in the material disclosed in Wang for an improved saturable absorber as disclosed in Thony(col. 2).

5. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Akselrod(6,846,434).

Wang does not disclose the following limitations.

Claim 15, Akselrod discloses growing a single crystal by contacting a seed crystal with a melt(col. 18, lines 15-19).

Claim 16, the seed crystal and the melt disclosed in Akselrod are rotated with respect to each other during growing(col. 18, lines 41-43).

Art Unit: 2828

Claim 17, the rotation disclosed in Akselrod is carried out at a rate within a range of about 2 to 12 rotations per minute(col. 18, lines 40-43).

Claim 18, the seed crystal disclosed in Akselrod is withdrawn from the melt within a range of about 0.04 inch per hour to about 0.1 inch per hour(col. 18, lines 38-41).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method disclosed in Akselrod to manufacture the material disclosed in Wang for an improved optical crystalline material as disclosed in Akselrod(cols. 1 & 2).

## Correspondence

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jim Vannucci whose phone number is (571) 272-1820.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (571) 273-8300.

James Vannucci